What is Claimed Is:

1. A sputter deposition apparatus, comprising:

(a) a chamber defining an interior space adapted to be maintained at a reduced pressure;

(b) at least one sputtering source in said chamber;

(c) mounting means for positioning a substrate/workpiece in said chamber for receipt of a sputtered particle flux from said at least one sputtering source; and

(d) a gas supply means for injecting a gas into said chamber, said at least one gas supply means extending into said chamber and comprising a plurality of differently-sized outlet orifices adapted for providing substantially the same flow rate of gas from each orifice.

2. The apparatus as in claim 1, wherein:

said gas supply means comprises an inlet portion and an outlet portion including said plurality of differently-sized outlet orifices, the size of said outlet orifices progressively increasing with distance from said inlet portion.

3. The apparatus as in claim 2, wherein:

said gas supply means comprises a linearly elongated tube having first and second ends, said inlet portion forming said first end, said outlet portion extending towards said second end, the size of said outlet orifices progressively increasing towards said second end.

4. The apparatus as in claim 2, wherein:

said gas supply means is wishbone-shaped and comprises a linearly elongated, tubular inlet portion having first and second ends, a pair of arcuately shaped, tubular outlet portions extending from said second end, the size of said

outlet orifices of each of said arcuate outlet portions progressively increasing with distance from said second end of said inlet portion.

5. The apparatus as in claim 4, wherein:

said at least one sputtering source comprises a pair of mutually facing sputtering sources, and said mounting means is adapted for positioning a substrate/workpiece having a pair of oppositely facing surfaces within a central space defined by said pair of outlet portions of said wishbone-shaped gas supply means.

6. The apparatus as in claim 5, wherein:

said plurality of outlet orifices of each of said pair of outlet portions face away from said central space.

7. The apparatus as in claim 2, wherein:

said gas supply means is ring-shaped and comprises a linearly elongated, tubular inlet portion having first and second ends, and a substantially circularly-shaped outlet portion extending from said second end, the size of said plurality of outlet orifices of said outlet portion progressively increasing with distance from said second end of said inlet portion.

8. The apparatus as in claim 7, wherein:

said at least one sputtering source comprises a pair of mutually facing sputtering sources;

said apparatus comprises a parallel spaced-apart pair of said ring-shaped gas supply means; and

said mounting means is adapted for positioning a substrate/workpiece having a pair of oppositely facing surfaces, and is located within a central space located between said circularly-shaped outlet portions of said pair of ring-shaped gas supply means.

9. The apparatus as in claim 8, wherein:

said outlet orifices of each of said pair of circularly-shaped outlet portions face inwardly toward said central space.

10. The apparatus as in claim 2, wherein:

each of said plurality of outlet orifices is circularly-shaped.

11. The apparatus as in claim 10, wherein:

each outlet orifice comprises a plug with a central opening extending therethrough defining the diameter of the orifice.

12. A method of forming a thin film on a substrate/workpiece by sputtering, comprising steps of:

(a) providing an apparatus comprising a vacuum chamber including at least one sputtering source and a gas supply means for injecting a gas containing at least one reactive component into said chamber, said gas supply means comprising a plurality of differently-sized outlet orifices adapted for providing substantially the same flow rate of gas from each orifice;

(b) providing said apparatus with a substrate/workpiece having at least one surface for formation of a thin film thereon;

(c) generating a sputtered particle flux from said at least one sputtering source;

(d) injecting said gas containing said at least one reactive component into said chamber via said gas supply means, such that substantially the same gas flow rate is provided at each orifice; and

(e) forming a reactively sputtered thin film on said at least one surface of said substrate/workpiece, said reactively sputtered thin film having a substantially uniform content of said at least one reactive component.

13. The method according to claim 12, wherein:

step (a) comprises providing an apparatus wherein said gas supply means comprises an inlet portion and an outlet portion including said plurality of differently-sized outlet orifices, the size of said outlet orifices progressively increasing with distance from said inlet portion.

14. The method according to claim 13, wherein:

step (a) comprises providing an apparatus wherein said gas supply means comprises a linearly elongated tube having first and second ends, said inlet portion forming said first end, said outlet portion extending towards said second end, the size of said outlet orifices progressively increasing towards said second end.

15. The method according to claim 13, wherein:

step (a) comprises providing an apparatus wherein said gas supply means is wishbone-shaped and comprises a linearly elongated, tubular inlet portion having first and second ends, a pair of arcuately shaped, tubular outlet portions extending from said second end, the size of said outlet orifices of each of said arcuate outlet portions progressively increasing with distance from said second end of said inlet portion.

16. The method according to claim 15, wherein:

step (a) comprises providing an apparatus including a pair of mutually facing sputtering sources;

step (b) comprises positioning a substrate/workpiece having a pair of surfaces within a central space in said chamber defined by said pair of outlet portions of said wishbone-shaped gas supply means, each surface of said substrate/workpiece facing a respective one of said pair of sputtering sources; and

step (c) comprises generating a sputtered particle flux from each of said pair of sputtering sources.

17. The method according to claim 13, wherein:

step (a) comprises providing an apparatus wherein said gas supply means is ring-shaped and comprises a linearly elongated, tubular inlet portion having first and second ends, and a substantially circularly-shaped outlet portion extending from said second end, the size of said outlet orifices of said outlet portion progressively increasing with distance from said second end of said inlet portion.

18. The method according to claim 17, wherein:

step (a) comprises providing an apparatus including a pair of mutually facing sputtering sources;

step (b) comprises positioning a substrate/workpiece having a pair of surfaces within a central space in said chamber defined by a parallel spaced-apart pair of said ring-shaped gas supply means, each surface of said substrate/workpiece facing a respective one of said pair of sputtering sources; and

step (c) comprises generating a sputtered particle flux from each of said pair of sputtering sources.

19. The method according to claim 12, wherein:

step (a) comprises providing an apparatus including at least one Co-based magnetic alloy;

step (b) comprises providing said apparatus with a precursor substrate/workpiece for a magnetic recording medium;

step (d) comprises injecting an oxygen-containing gas into said chamber; and

step (e) comprises forming a Co-based alloy magnetic recording layer with oxide-separated magnetic grains.

20. A magnetic recording medium fabricated by the method according to claim 19.

21. A disk-shaped magnetic recording medium fabricated according to the method of claim 19, with a Co-alloy based magnetic recording layer having a uniform oxide content over $360^0$ of the disk surface.

22. A method of manufacturing a magnetic recording medium, comprising steps of:

(a) providing an apparatus comprising a vacuum chamber including at least one source for supplying a flux of sputtered Co-based alloy particles and a gas supply means for injecting an oxygen-containing gas into said chamber, said gas supply means comprising a plurality of differently-sized outlet orifices adapted for providing substantially the same flow rate of gas from each orifice;

(b) providing said apparatus with a precursor substrate/workpiece for a magnetic recording medium, said precursor substrate/workpiece having at least one surface for formation of a thin film thereon;

(c) generating said sputtered Co-based alloy particle flux from said at least one source;

(d) injecting said oxygen-containing gas into said chamber via said gas supply means, such that the same gas flow rate is provided at each orifice; and

(e) forming a reactively sputtered Co-based alloy magnetic thin film on said at least one surface of said precursor substrate/workpiece, said reactively sputtered thin film having a substantially uniform oxide content.

23. A magnetic recording medium fabricated by the method according to claim 22.

24. A disk-shaped magnetic recording medium fabricated according to the method of claim 19, with a Co-alloy based magnetic recording layer having uniform oxide content over $360^0$ of the disk surface.